

# Town of Weston

## *Pavement Management Program*

### *Existing Conditions Summary and Budget Planning*

February 13, 2020





Anthony J. Garro  
Vice President  
GIS & Asset Management Services



**BETA Works with more than 160 communities throughout New England on developing and maintaining Pavement Management Programs.**

- § Relied on by organizations to teach pavement management theory and project process
  - § NE APWA
  - § Bay State Roads (MA)
  - § MA Highway Associations
  - § T2 Connecticut

- § Attend national conferences on pavement preservation and maintenance.

We complete projects like this every day!

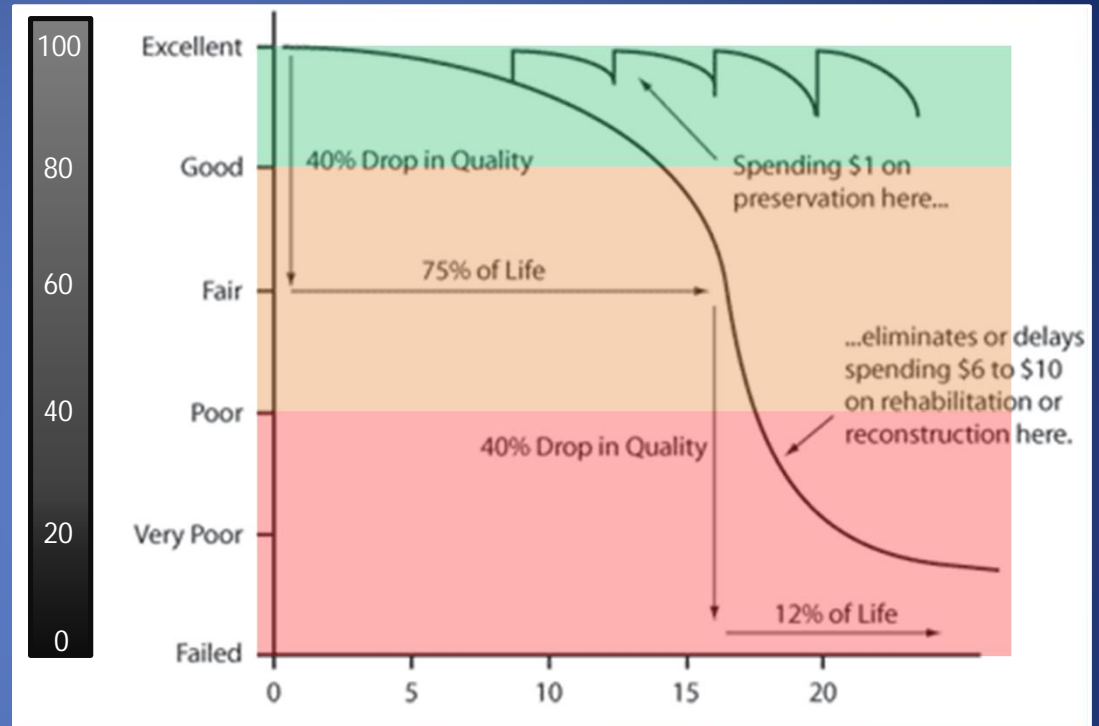
# Benefits of Pavement Management



- The practice of planning for pavement maintenance and rehabilitation with the goal of maximizing the value and life of a pavement network
- It is more cost effective to keep good roads in good condition
- *Proactive* vs. *Reactive*

# Program Goals & Objectives

- ü Conduct Pavement Condition Assessment
  - ü Evaluate Repair Strategies & Benefits
  - ü Establish Backlog
  - ü Development of a Prioritized Plan
- ∅ *Provide Foundation for Decision Making*



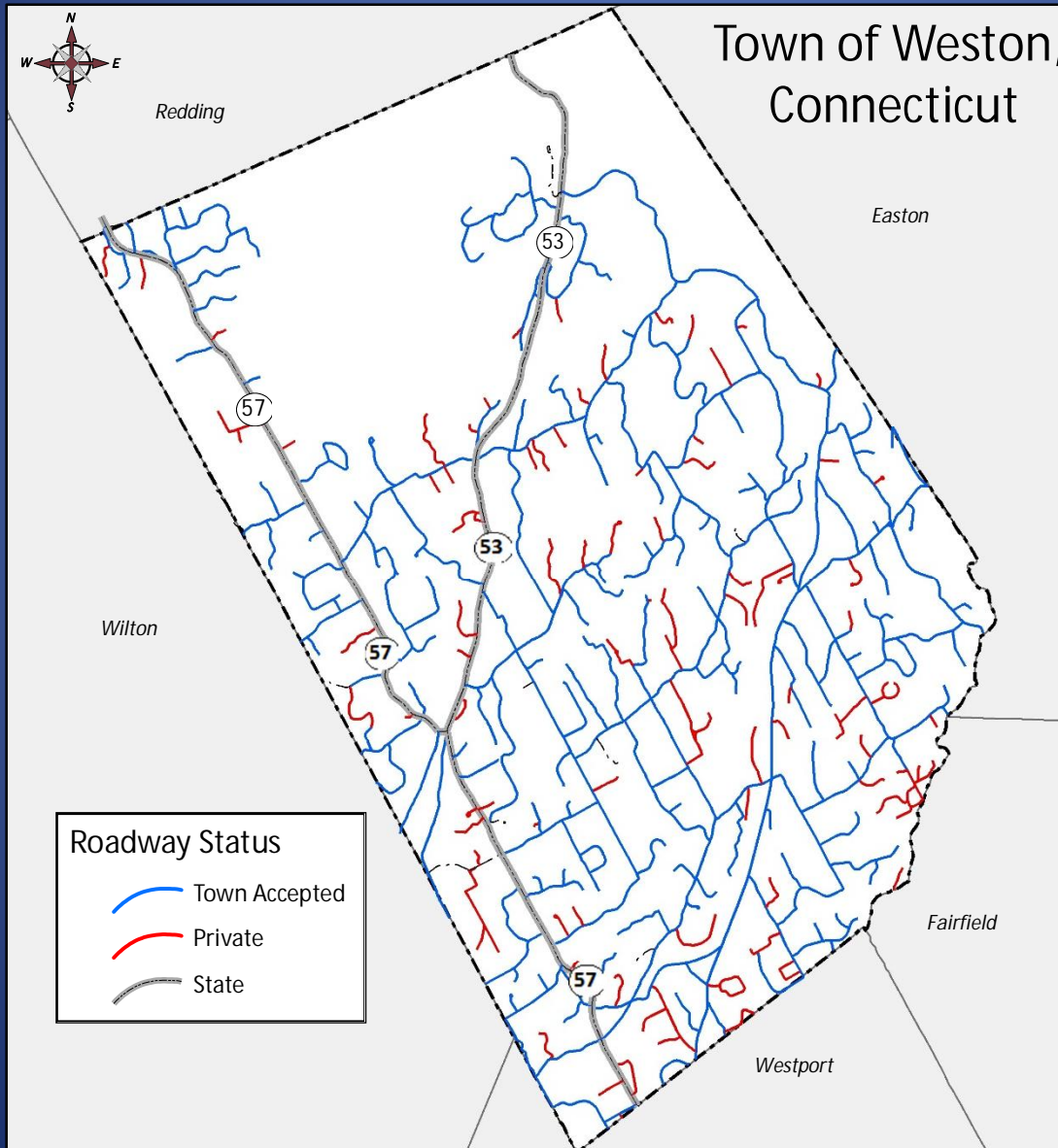
**CIP Tool**

# Five Step Project Approach

1. Database Design & Configuration
2. Pavement Inspection Program
3. Existing Conditions Analysis
4. Capital Planning & Prioritization
5. System Deployment & Training

# Pavement Inspection Program

## *Automated Approach*



### Roadway Profile

Type	Miles
Town Accepted	81.07
Unaccepted/Private	19.68
State	11.43
Total	113.66

# Pavement Inspection Program

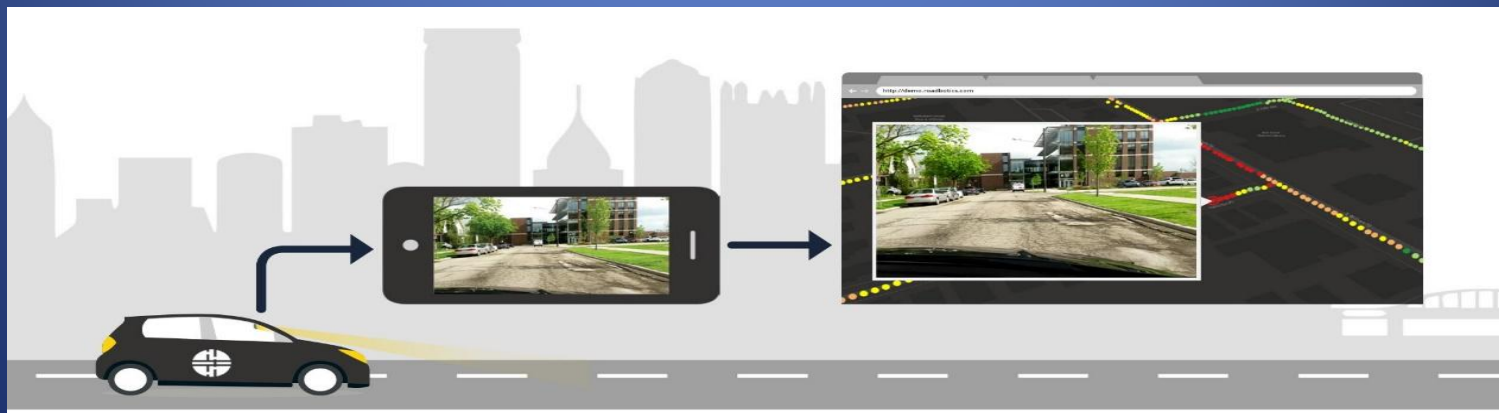
## *Automated Approach*

Uses Machine-Learning Technology to extract information every 10'

- ∅ Non-biased
- ∅ Extremely cost effective
- ∅ High Resolution photographs

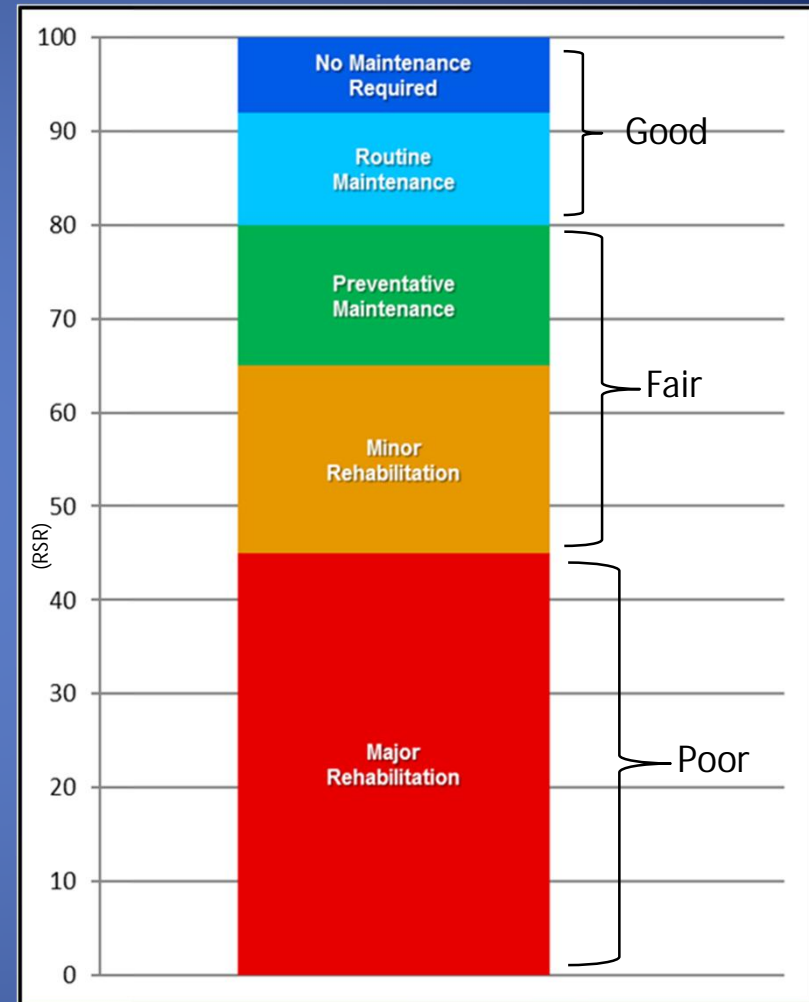


Photograph from Inspections



# Establish Repair Options & Average Costs

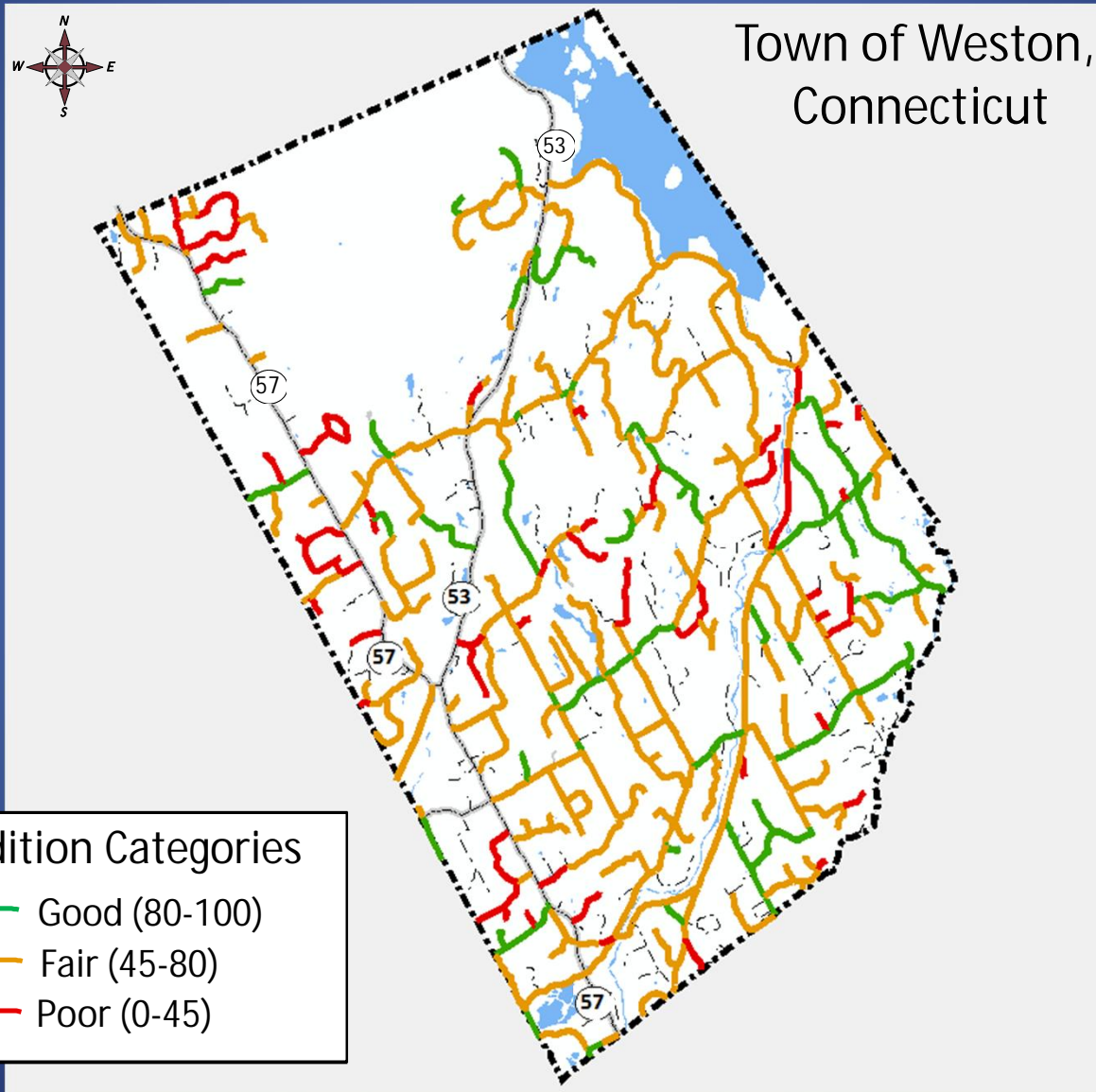
- Defer Maintenance - \$0 SY
- Routine Maintenance – Avg. Cost \$0.50 SY
  - Crack Sealing
  - Fog Seal
- Preventative Maintenance – Avg. Cost \$6.00 SY
  - Chip Seal
  - Microsurface
  - Shim & Overlay
- Minor Rehabilitation – Avg. Cost \$14.00 SY
  - Mill and Overlay
  - Mill, Level and Overlay
- Major Rehabilitation – Avg. Cost \$40.00 SY
  - Reconstruction
  - Reclamation



\* Please note that unit prices reflect curb to curb improvements only

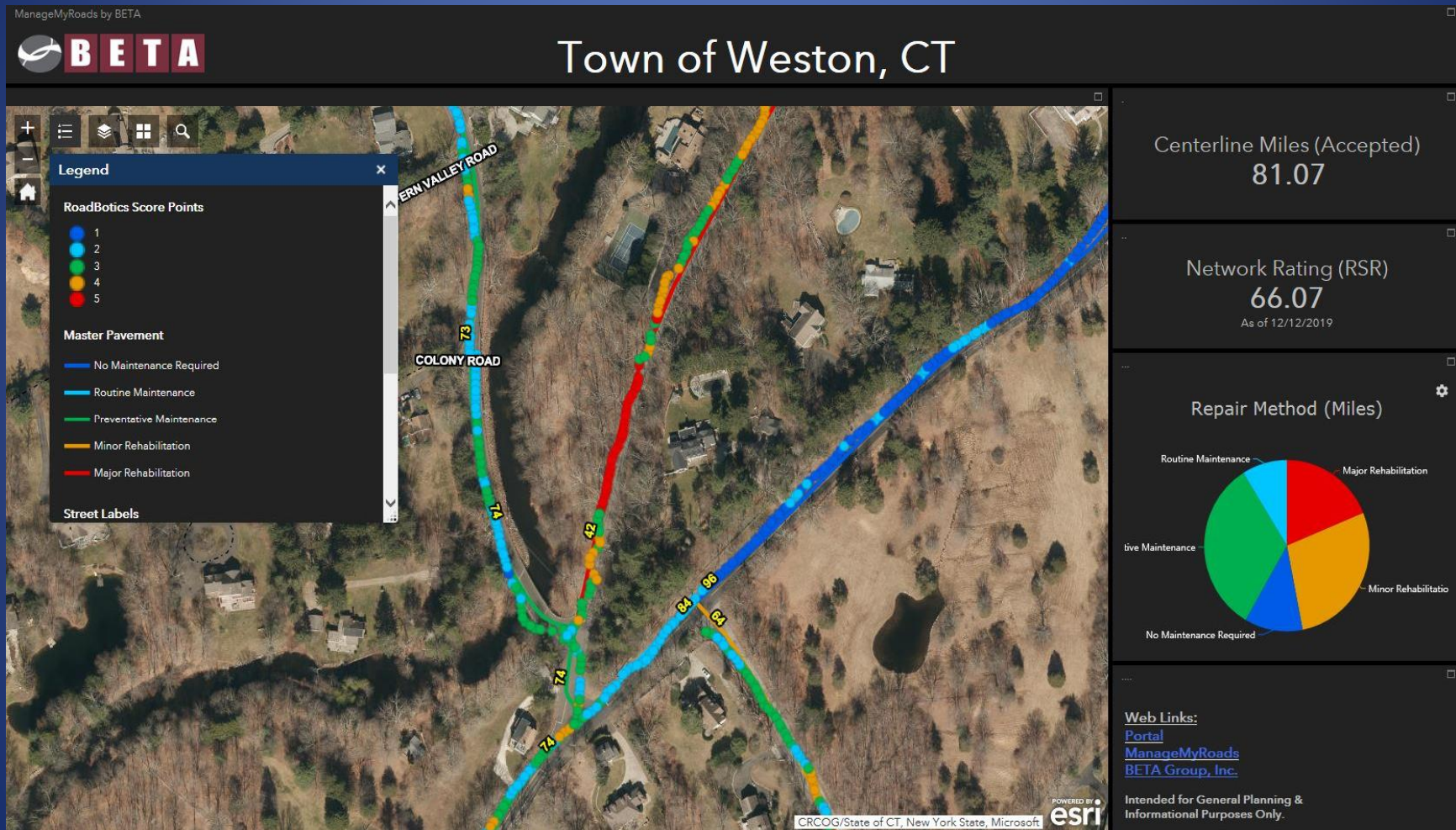


# General Pavement Condition Map



# Pavement Inspection Program

## Automated Approach



# Pavement Inspection Program

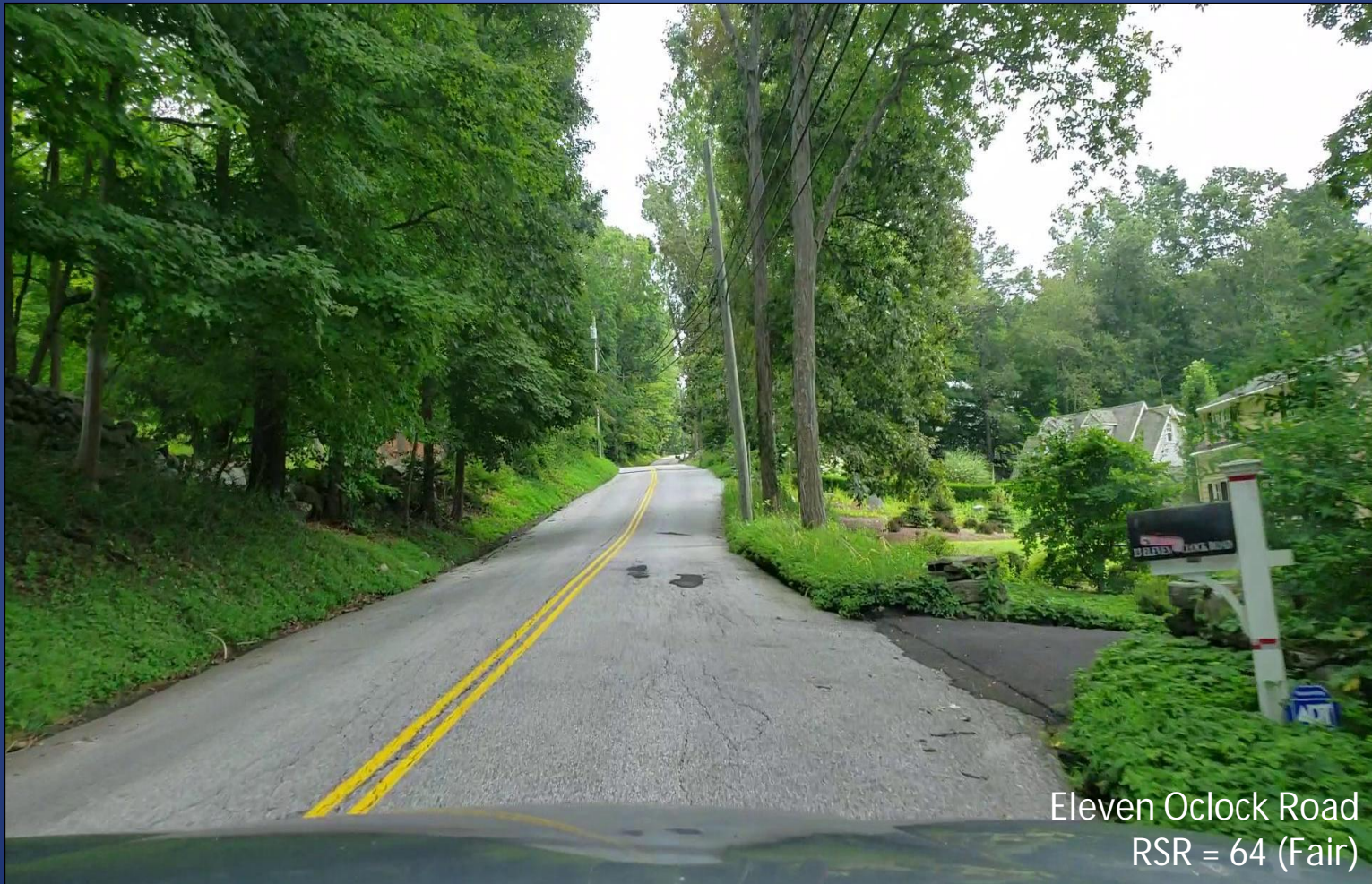
## *Automated Approach*



Old Easton Turnpike  
RSR = 99 (Good)

# Pavement Inspection Program

## *Automated Approach*



Eleven O'clock Road  
RSR = 64 (Fair)

# Pavement Inspection Program

## *Automated Approach*



North Ave  
RSR = 26 (Poor)

# Existing Conditions Analysis

## Breakdown of Estimated Repairs

<i>Repair Method</i>	<i>Length (Miles)</i>	<i>Square Yards</i>	<i>Percent Repair</i>	<i>Estimated Cost</i>
Major Rehabilitation	15.27	199,351	18.84%	\$7,974,030
Minor Rehabilitation	22.77	296,890	28.09%	\$4,156,597
Preventative Maintenance	26.63	361,784	32.85%	\$2,170,703
Routine Maintenance	7.15	95,652	8.82%	\$47,826
No Maintenance Required	9.24	121,936	11.40%	\$0
<b>Total</b>	<b>81.07</b>	<b>1,075,622</b>	<b>100%</b>	<b>\$14,349,156</b>
AVERAGE RSR by Segment:	66.07			

Network Rating =  
66.07

*\*Based on curb to curb improvements only, does not include sidewalk, curb ramp or utility improvements. Estimated costs as shown are for planning purposes only and do not reflect fluctuations in liquid asphalt or other pavement mix components.*

# RSR Comparison by Community

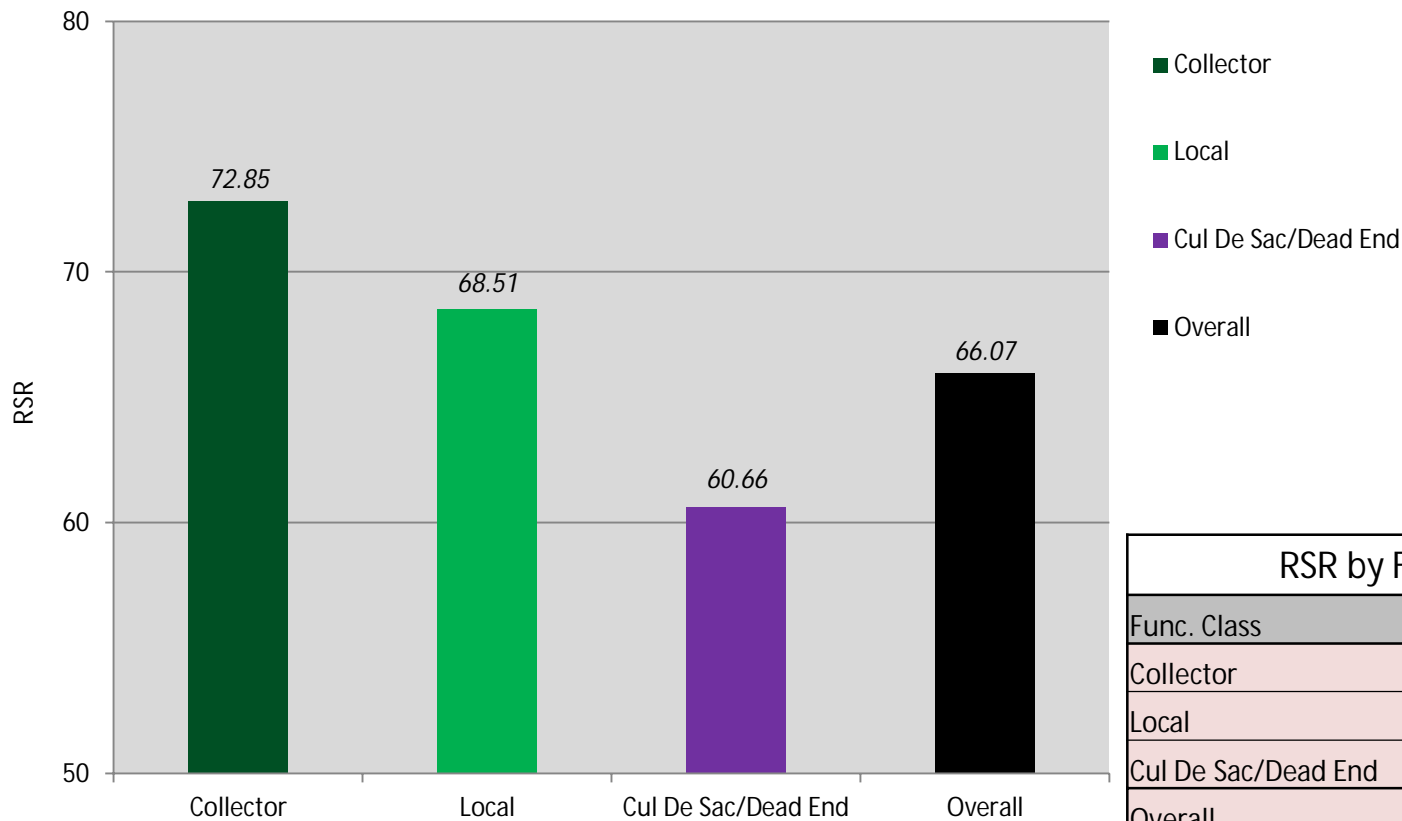
Inspection Method	MILEAGE	AVG. RSR	Inspection Year
Automated	47	77.91	2019
Automated	92	68.95	2019
Automated	60	66.24	2019
Automated	81.07	66.07	2019
Manual	115	77.31	2016
Manual	64	72.13	2017
Manual	124	67.72	2013

WESTON →



# Existing Conditions Analysis

## Road Condition by Functional Class



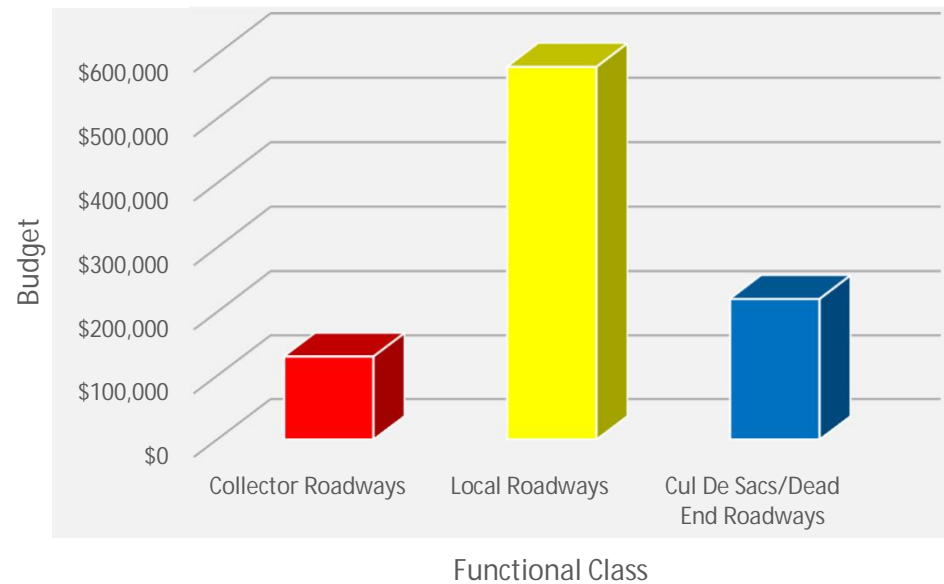
Func. Class	AVG. RSR	Total Miles
Collector	72.85	10.56
Local	68.51	49.77
Cul De Sac/Dead End	60.66	20.74
Overall	66.07	81.07



# Data Analysis & Planning

## Roadway Forecast Summary Weston, CT

Functional Class	Road Miles	Current RSR	Target RSR	Annual Target Amount
Collector Roadways	10.56	72.97	77.00	\$130,000
Local Roadways	49.77	68.62	72.50	\$580,000
Cul De Sacs/Dead End Roadways	20.74	60.77	65.00	\$220,000
Total	81.07			\$930,000
Network Level	81.07	66.07	70.00	\$930,000



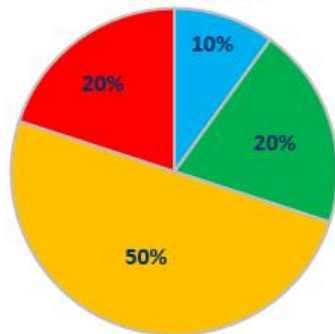
# Data Analysis & Planning

## Forecast Scenario A

### Roadway Forecast Model Weston, CT

ManageMyRoads by BETA

Funding Distribution by  
Repair Type

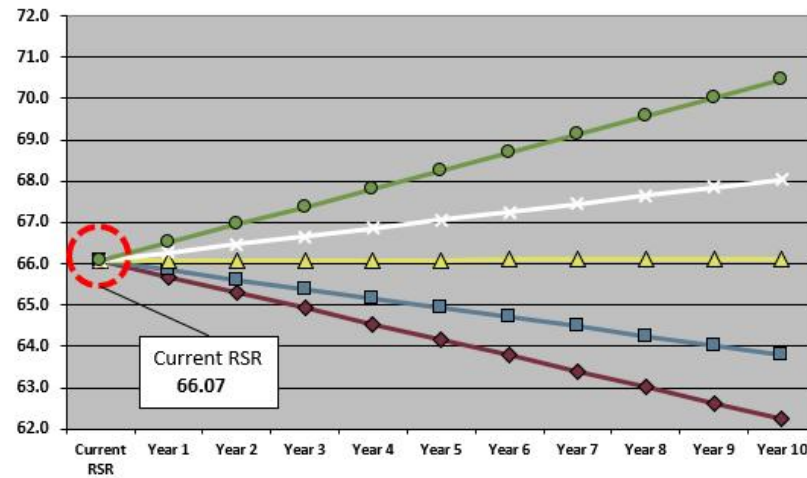


- Routine Maintenance
- Preventative Maintenance
- Minor Rehabilitation
- Major Rehabilitation

### Analysis Type: Network Level

Road Miles: 81.07

Target RSR: 70.0



### Funding Scenarios

Scenario 1	\$400,000
Scenario 2	\$500,000
Scenario 3	\$650,000
Scenario 4	\$775,000
Scenario 5	\$930,000

\*Please Note: Unit pricing accounts for curb to curb improvements only; does not include any drainage, sidewalk, ADA, gravel sub-base or utility improvements.

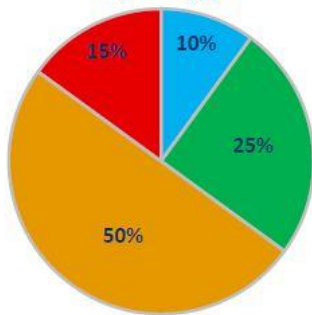
# Data Analysis & Planning

## Forecast Scenario A

### Roadway Forecast Model Weston, CT

ManageMyRoads by BETA

Funding Distribution by  
Repair Type

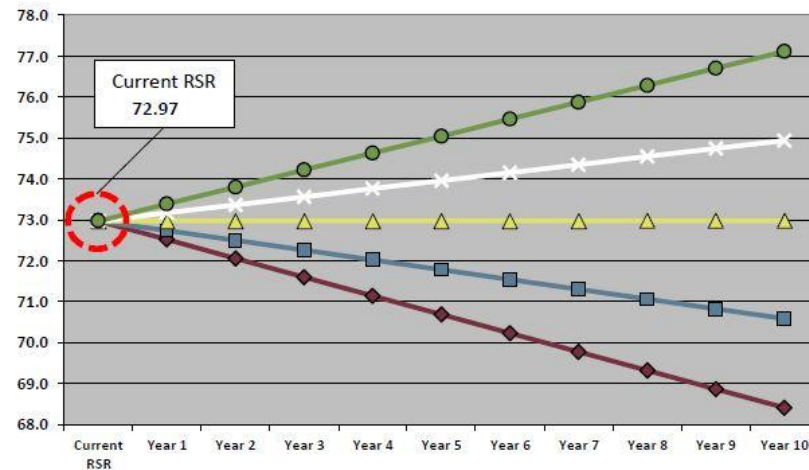


- Routine Maintenance
- Preventative Maintenance
- Minor Rehabilitation
- Major Rehabilitation

### Analysis Type: Collector Roadways

Road Miles: 10.56

Target RSR: 77.0



Funding Scenarios

Scenario 1	\$50,000
Scenario 2	\$70,000
Scenario 3	\$92,000
Scenario 4	\$110,000
Scenario 5	\$130,000

\*Please Note: Unit pricing accounts for curb to curb improvements only; does not include any drainage, sidewalk, ADA, gravel sub-base or utility improvements.

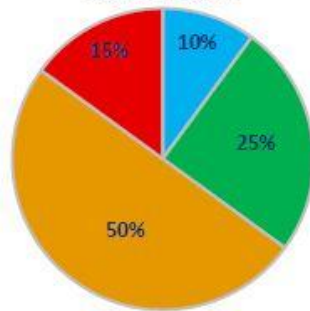
# Data Analysis & Planning

## Forecast Scenario A

### Roadway Forecast Model Weston, CT

ManageMyRoads by BETA

Funding Distribution by  
Repair Type

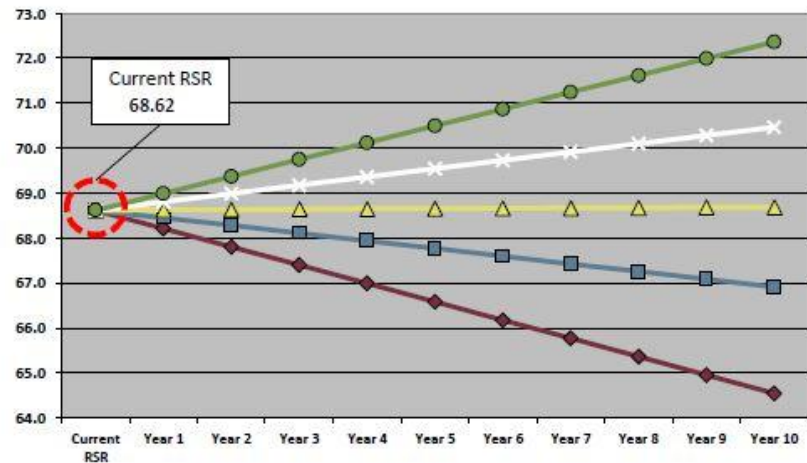


- ▬ Routine Maintenance
- ▬ Preventative Maintenance
- ▬ Minor Rehabilitation
- ▬ Major Rehabilitation

### Analysis Type: Local Roadways

Road Miles: 49.77

Target RSR: 72.5



Funding Scenarios

Scenario 1	\$250,000
Scenario 2	\$350,000
Scenario 3	\$425,000
Scenario 4	\$500,000
Scenario 5	\$580,000

\*Please Note: Unit pricing accounts for curb to curb improvements only; does not include any drainage, sidewalk, ADA, gravel sub-base or utility improvements.

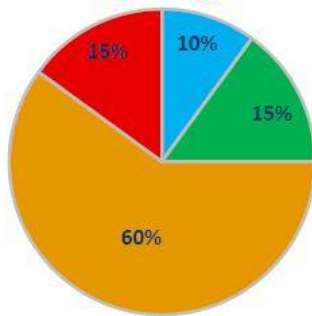
# Data Analysis & Planning

## Forecast Scenario A

### Roadway Forecast Model Weston, CT

ManageMyRoads by BETA

Funding Distribution by  
Repair Type

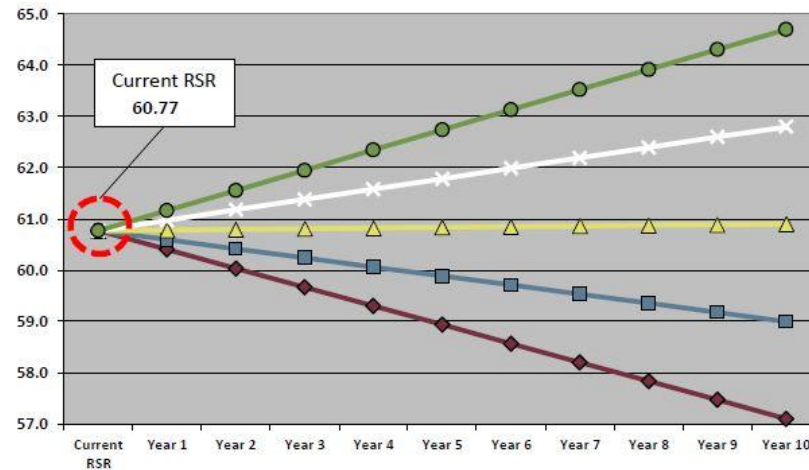


- Routine Maintenance
- Preventative Maintenance
- Minor Rehabilitation
- Major Rehabilitation

### Analysis Type: Cul De Sac/Dead End Roadways

Road Miles: 20.74

Target RSR: 65



Funding Scenarios

Scenario 1	\$100,000
Scenario 2	\$130,000
Scenario 3	\$160,000
Scenario 4	\$190,000
Scenario 5	\$220,000

\*Please Note: Unit pricing accounts for curb to curb improvements only; does not include any drainage, sidewalk, ADA, gravel sub-base or utility improvements.

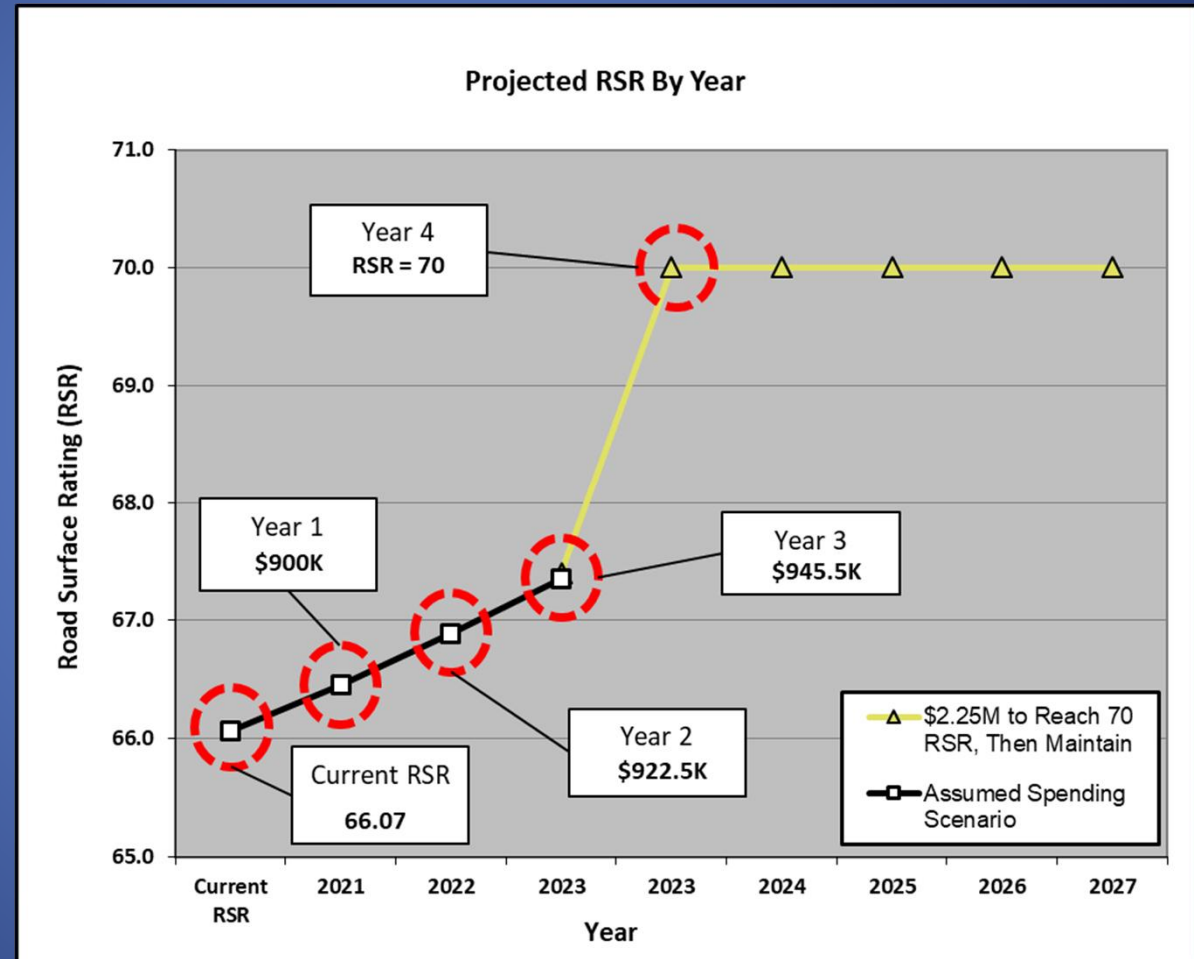
# Data Analysis & Planning

## Forecast Scenario B

### Scenario B

- Year 1 - \$900k
- Year 2 - \$922.5k
- Year 3 - \$945.5k

- \$2.25 Million to Reach 70 RSR in Year 4
- \$650k to Maintain thereafter



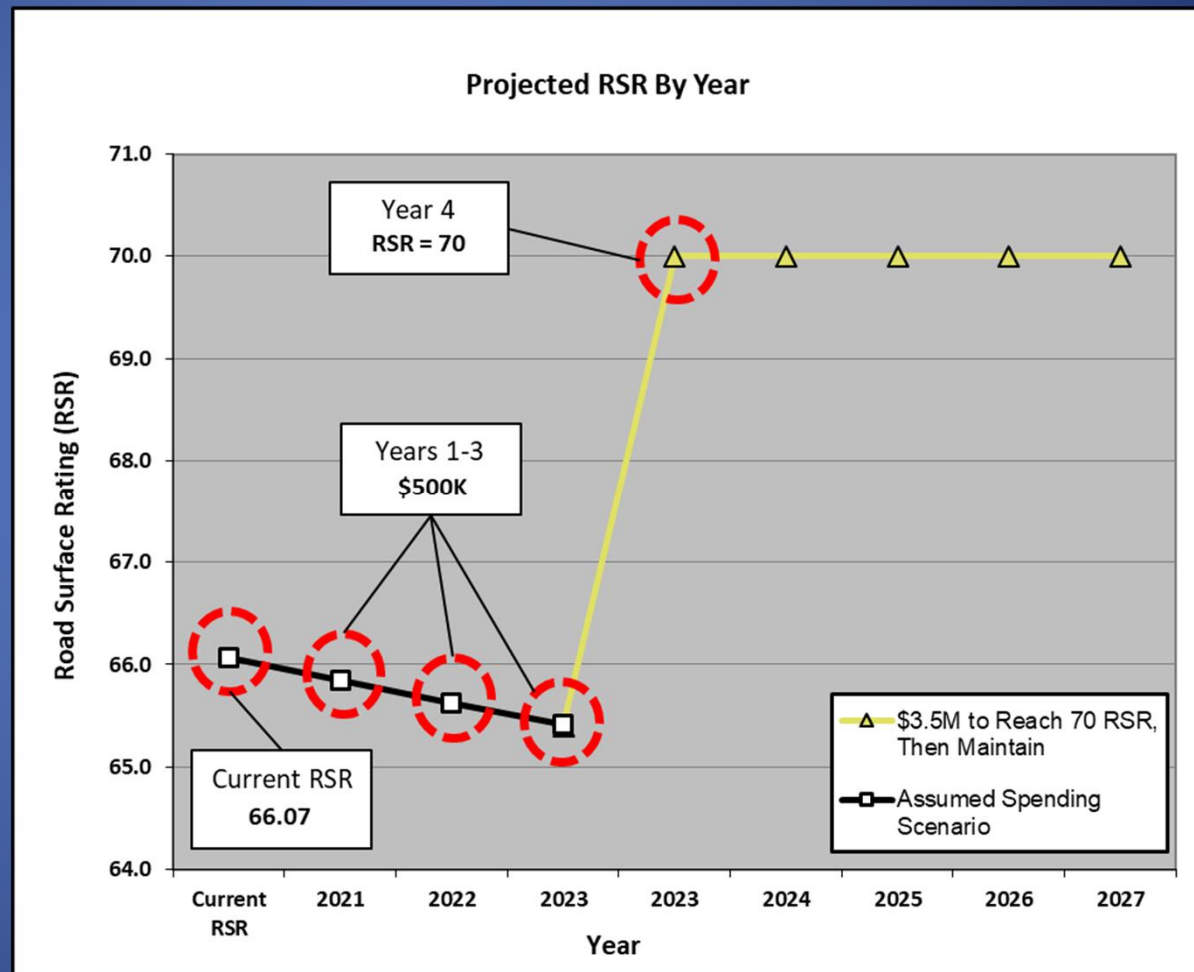
# Data Analysis & Planning

## Forecast Scenario C

### Scenario C

- Year 1 - \$500k
- Year 2 - \$500k
- Year 3 - \$500k

- \$3.5 Million to Reach 70 RSR in Year 4
- \$650k to Maintain thereafter



# Next Steps

## *Capital Improvement Planning & Prioritization*

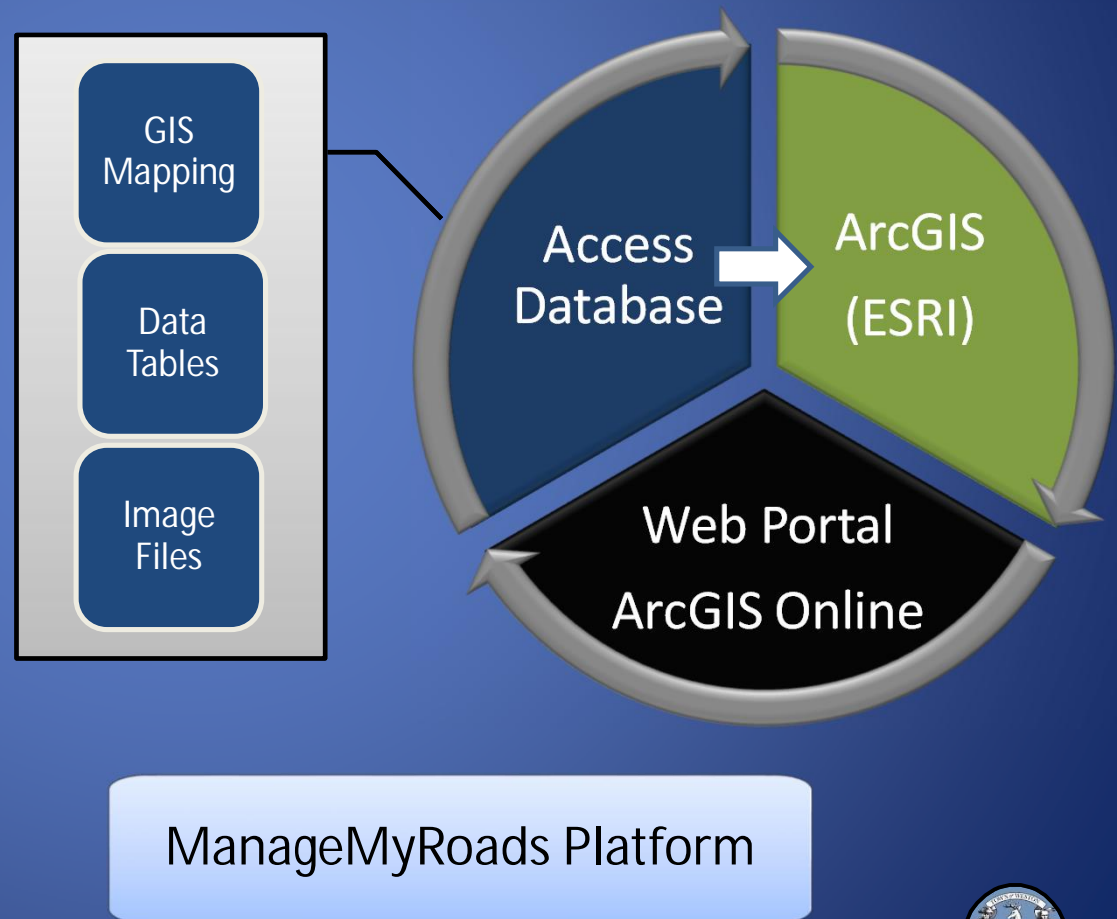




# Next Steps

## *System Deployment & Data Management*

- Training Program
- Update data as improvements are completed
- Monitor and update actual costs
- Re-assess roadways every 3 years
- System Support



## Concluding Remarks

1. Comprehensive Inventory has been created for Town Accepted roads, their condition, & the most effective way to prioritize maintenance and repairs.
2. Designed to better manage limited dollars allocated to road work in Town
3. Capable of assessing the different types of repair strategies necessary to maximize the lifecycle of the roads

# Town of Weston

## *Pavement Management Program*

*Existing Conditions and  
Budget Planning*

Thank You

